2/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACOUSTICAL PROPERTIES WERE STUDIED OVER A WIDE RANGE OF FREQUENCIES, CONCNS. AND TEMPS. TO DET. THE KINETICS OF THE CONCN. FLUCTUATIONS. THE COEFF. OF ROUND ABSORPTION ALPHA WAS DETD. AT 20-1000 MHZ AND THE PROPAGATION RATE OF SOUND WAS DETD. BY A PHASE METHOD. THE ACOUSTICAL RELAXATION IN AMYL ALC. IS DUE TO STRUCTURAL RELAXATION, I.E., PROCESSES FOR THE REARRANGEMENT OF THE ASSOCD. COMPLEXES BECAUSE OF H BONDS. THE EXPTL. VALUE FOR THE RELAXATION TIME FOR AMYL ALC. IS SIMILAR TO 7.44 TIMES 10 PRIME NEGATIVE11 SEC. THE VOL. AND SHEAR VISCOSITY RELAX SIMULTANEOUSLY IN AMYL ALC. IN THE AMYL ACL. MENO SUB2 SOLNS. FOR FREQUENCY SMALLER THAN 10 PRIME9 HZ-ALPHA-F PRIME2 INCREASES SHARPLY AND PASSES THROUGH A MAX. FOR A MOLE FRACTION OF AMYL ALC. EQUAL TO THE CRIT. CONCN. THUS, A NEW REGION OF ACOUSTICAL DISPERSION EXISTS RELATED TO THE RELAXATION OF THE CONCN. FLUCTUATIONAS. THIS REGION IS CHARACTERIZED BY THE FOLLWING FEATURES: A NEW REGION OF RELAXATION, ALPHA-F PRIME2 AND AN INCREASE IN THE ATTENUATION OF THE SOUND ASSOCD. WITH IT IS OBSERVED AT LOW ULTRASONIC FREQUENCIES; THE RELAXATION TIME SPECTRUM MUST BE INTRODUCED TO DESCRIBED THE FREQUENCY DEPENDENCE OF THE ATTENUATION COEFF., THE ALPHA-F PRIME2 RELAXATION IS NOT ACCOMPANIED BY ANY SIGNIFICANT CHANGES IN THE SPEED OF SOUND.

UNCLASSIFIED

USSR

PARRING, A. Kh.

"Some Problems of Regression Analysis"

Tr. Vychisl. Tsentra. Tartus. Un-t. [Works of Computer Center of Tartu University], 1972, No 26, pp 43-62 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V209 by A. Bernshteyn).

Translation: This article is dedicated to a review of methods of regression analysis. Estimates of the method of least squares and of correlation factors are studied, confidence intervals are constructed. Questions are discussed related to the construction of the regression model itself.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--FLARE STARS IN THE PLEIADES -U-

AUTHOR-(05)-AMBARTSUMIAN, V.A., MIRZOIAN, L.V., PARSAMIAN, E.S.,
CHAVUSHIAN, O.S., YERASTOVA, L.K.

COUNTRY OF INFO--USSR

SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 7-30

DATE PUBLISHED-----FEB70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--STAR, ASTRONOMIC OBSERVATORY, FLARE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1770 STEP NO--UR/0388/70/006/000/0007/0030

CIRC ACCESSION NO--AP0125386

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--230CT70
CIRC ACCESSION NO--AP0125386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OBSERVATIONAL DATA FOR 46 NEW FLARE STARS DISCOVERED IN THE PLEIADES DURING 1968 AND 1969 AT THE TONANTZINTLA, ASIAGO, BIURAKAN, BUDAPEST, AND ALMA ATA OBSERVATORIES. A STATISTICAL STUDY OF FLARE STARS SHOWS THAT THEIR OVERALL NUMBER IN THE PLEIADES SHOULD EXCEED 600. THE DISTRIBUTION OF FLARE STARS ACCORDING TO THE NUMBER OF OBSERVED FLARES IS WELL REPRESENTED BY THE SUM OF TWO POISSON DISTRIBUTIONS WITH DIFFERENT MEAN FREQUENCIES. ALL, OR ALMOST ALL, OF THE MEMBERS IN PLEIADES WITH VISUAL MAGNITUDES LESS THAN 13.3 ARE FLARE STARS. AT A VALUE OF 13.29, THERE IS A SHARP BORDER BETWEEN PHOTOGRAPHICALLY OBSERVABLE FLARE STARS AND NONFLARING STARS. THE MEAN FREQUENCY OF LARGE FLARES (AMPLITUDE GREATER THAN 0.6 MAGNITUDE) WAS .0001 PER HR FOR MOST STARS. FACILITY: BIURAKANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, YEREVAN, ARMENIAN SSR.

UNCLASSIFIED

USSR

UDC 621.311.42:621.316.1

GOROKHOVIR, D. I., MAKSIMOV, V. I., PARSADANYAN, V. V., TRAKHTENBERG, M. I.

"Six-Ten Kilovolt Transformer Substation for Municipal Electric Power Networks"

V sb. Tekhn. progress v elektrosnabzh. gorodov (Technical Progress in Municipal Electric Power Supply -- Collection of Works), Leningrad, Energiya Press, 1970, pp 222-225 (from RZh-Elektrotekhnika i Energetika, No 3, Mar 71, Abstract No 3Ye80)

Translation: At Kishinev, a 630 kilovolt-ampere dual-transformer substation developed on the basis of the standard design No 407-3-52 (KSK-32-630) has been introduced. This substation is designed for application in areas where there are low buildings with high load density and responsible consumers. The buses are sectionalized on the 6-10 kilovolt-ampere side. This makes it possible to execute dual-wire circuits.

1/1

USSR UDC: 621.374.5(088.8)

BORMOTOV, Yu. D., IVKIN, I. V., KARULIN, A. P., PARSANOV, A. P.

"A Delay Line"

USSR Author's Certificate No 280537, filed 18 Apr 67, published 9 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, abstract No 6G312 P)

Translation: A delay line is proposed which is equipped with a ferromagnetic element and a magnetizing winding which controls the delay time by changing the permeability of the ferromagnetic element. To simplify the design, a multilayered permalloy film which serves as a shield and return conductor for the delay line is used as the ferromagnetic element.

USSR

GORBACHEV, B. I.: IVANITSKIY, P. G.: KROTENKO, V. T.: PASECHNIK, M. V. (Institute of Nuclear Research of the Ukrainian Academy of Sciences, Kiev)

"Study of Inelastic Scattering of Slow Neutrons by Nickel Specimens of Differing Isotopic Composition"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; April 1973, pp 558-63

Abstract: Inelastic scattering cross sections of slow neutrons by polycrystalline specimens of nickel with a natural isotopic mixture, with an incoherent dispersive isotopic mixture and with the isotopic mixture enriched by the isotope Ni^{62} to ~95%, were measured with high statistical accuracy. With respect to these scattering cross sections the frequency distribution functions g (Δ E) of the normal oscillations of the atoms in a nickel lattice were derived.

The effect of coherence on the accuracy of the derivation of the function g(Δ E) of the coherent diffusers in the incoherent approximation and the effect of the isotopic composition of the specimens on the function g(Δ E) were discussed.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INCLINED BACKSCATTER SOUNDING OF THE IONOSPHERE IN RADIO COMMUNICATIONS PRACTICE -U-

AUTHOR--PASHCHENKO, S.YE.

P

COUNTRY OF INFO--USSR

SOURCE--ELEKTROSVIAZ', VOL. 24, FEB. 1970, P. 66-73

DATE PUBLISHED----FEB70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--IONOSPHERE SCATTER COMMUNICATION, MULTICHANNEL COMMUNICATION, TELEGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1163 STEP NO--UR/0106/70/024/000/0066/0073

CIRC ACCESSION NO--AP0120010

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120010

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF METHODS FOR PRACTICAL INCLINED BACKSCATTER SOUNDING OF THE IONOSPHERE IN INDIVIDUAL CHANNELS OF A MULTICHANNEL RADIO LINK. ACTUAL INCLINED BACKSCATTER DATA OBTAINED WITH DOUBLE FREQUENCY TELEGRAPHY DURING MINIMUM SOLAR ACTIVITY (1964 TO 1965) ARE ANALYZED AND COMPARED WITH FORECAST DATA OF THE IZMIRAN SERVICE. RECOMMENDATIONS ARE GIVEN FOR OPTIMIZING RADIO COMMUNICATIONS LINKS ON THE BASIS OF INCLINED BACKSCATTER DATA.

UNCLASSIFIED

PARSHCHIKOV, A.A.

~~Radioastronomy~~

CAROL

SO: JPRS 59985
7 SEP 73

(3)

UDC 621.396.628:523.164

A SYSTEM FOR AUTOMATING OBSERVATIONS ON THE RTI-7.50/250 MVTU RADIOTELESCOPE

all- Radioastronomy

[Article by A.A. Parshchikov, B.A. Rozanov, and V.S. Sagatelov
of the Moscow Higher Technical School imeni N.E. Bauman; Moscow,
Izvestiya Vysshikh Uchebnykh Zavedeniy -- Radiofizika, Russian,
Vol 16, No 5, 1973, submitted 4 November 1972, pp 703-706]

The first solar and lunar observations made on the RTI-
7.5/250 MVTU [Moscow Higher Technical School imeni N. E. Bau-
man] radiotelescope showed that the minimal width of the radi-
ation pattern was close to that computed ($\theta_{0.5} \approx 30''$ at $\lambda =$
1 millimeter). For practical work on radio sources the posi-
tion of the antenna's radiation pattern must be controlled in
space with a precision of no less than $(1/3-1/6)\theta_{0.5}$, that is,
10 to 5". To solve this problem, a design has been developed
for a high-precision synchronous-tracking drive (SSP) system
whose implementation will permit RTI-7.5/250 antennas to have
the following operating modes:

Automatic guidance and tracking per UVM [general-purpose
computer] data, with or without scanning of the target;

Semiautomatic guidance of slow and rapid motion;

Automatic tracking per a photo-guide;

Rapid resetting of antennas in all operating-angle
bands; and

Functional monitoring of the whole control complex in a
local control mode.

Investigations of the precision and stability of the
radiotelescope's control systems, which were examined as a com-
bined linear pulsed (impul'snyy) system[1], were made with a

- 1 -

PARSHCHIKOV, A.A.

Radioastronomy

SO: JPRS 59985
7 SEP 73

(3)

UDC 621.396.628.523.164

METHOD OF ALIGNMENT AND TECHNOLOGY OF FABRICATING RTI-7.5/250 MVTU RADIOTELESCOPE ANTENNAS

[Article by A.A. Parshchikov, B.A. Rosanov, V.S. Sagatelov,
and A.A. Tanygin of Moscow Higher Technical School imeni N.E.
Bauman; Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Radio-
fizika, Russian, Vol 15, No 5, 1972, submitted 4 November 1972,
pp 665-668]

Error in fabricating the reflecting surface of an RTI-
7.5-250 MVTU [Moscow Higher Technical School imeni N. E. Bau-
man] radiotelescope antenna (figure 1 [not reproduced]),
according to aperture error theory, should not exceed ± 0.1
millimeter for effective operation in the shortwave portion of
the millimeter wave band. The relative precision of antenna
fabrication in this case should be D/ε = (2 to 3)·10⁵. Of all
methods for monitoring the reflecting parabolic surfaces of
antennas which are known to the author, the best is one which
uses a fully rotatable technological model (shablon) for align-
ing an RTI-7.5/250 reflector. However, the method of aligning
the model's working edge which was proposed by P. D. Kalachev
and which was used in fabricating the RT-22's at FIAN [Physics
Institute imeni P. N. Lebedev of the USSR Academy of Sciences]
and KrAO [Crimean Astrophysical Laboratory] does not permit a
profile to be obtained with the required precision[1,2]. MVTU
has developed a new method which permits successful solution
of this problem.

The new method is based on the parabola's characteristic
of focusing parallel rays at a single focal point. Figure 2
shows the scheme of a rig and location of the instruments. The
rig includes: 1 -- an OKG-75 light source, 2 -- a mobile stand
with a reflecting prism, 3 -- a guide bar, 4 -- a screen, 5 --
an AK-1000 automatic collimator, 6 -- a checking model, and
7 -- a reflector bridge.

Alignment of the model, previously fabricated with a
precision of ± 0.4 millimeter by end gauges, is done this way.

- 19 -

USSR

UDC 548.4

TYAPUNINA, N. A., PASHCHENKO, T. N., ZINENKOVA, G. M., Moscow State University imeni M. V. Lomonosov

"Grids of Dislocations Formed During Growth and Annealing in Base Plane of Zinc Single Crystals"

Moscow, Kristallografiya, Vol 18, No 2, Mar-Apr 73, pp 418-420.

Abstract: Primary attention in this work is given to the study of the nature of the dislocations and determination both of Burger's vectors b and direction vectors dl of segments of dislocation grids. Studies were performed using a GEM-100V electron microscope at 100 kv accelerator voltage. Analysis of the pictures produced showed that the dislocation grids consist mainly of mixed dislocations. Over 20 grids were studied and in all cases it was found that the orientation of segments of dislocations was near edge orientation. This fact might be related to the process of preparation of specimens, since dislocation structures of helical segments might easily break down in the thin foil due to transverse slipping, while nonconservative motion is required for projection of edge segments from the plane of the grid.

1/1

USSR

UDC 621.315.592

BANIS, T. YA., PARSHELYUNAS, I. V., POZHELA, YU. K.

"Absolute Negative Resistance of Gallium Arsenide under the Effect of a Strong Superhigh-Frequency Field on It"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 10, October 1971, pp 1990-1992

Abstract: A study was made of low-ohmic electron gallium arsenide in strong superhigh-frequency fields. Under the effect of the strong electric field of a wave guide, a filamentary test piece of gallium arsenide has a negative external resistance. Both the static u/i and the differential du/di resistances have a negative sign in this case. An explanation is offered for this phenomenon, and experimental curves are presented showing the constant current component of electronic gallium arsenide ($\rho \approx 0.4$ ohm-cm) as a function of the constant external voltage under the effect of the variable field of a wave guide at a frequency of 9 gigahertz on the test piece. The negative differential resistance of gallium arsenide in the vicinity of the origin of the coordinates permits oscillation generation to be obtained by direct connection of an oscillatory circuit to the test piece. These oscillations were obtained experimentally with a parallel circuit on the order of 10 megahertz.

1/1

USSR

UDC: 577.4

PARSHENKOV, N. Ya., CHENTSOV, V. M.

"Problems in the Theory of Probabilistic Automata"

V sb. Avtomaty i upr. setyami svyazi (Automata, and Control of Communications Networks--collection of works), Moscow, "Nauka", 1971, pp 180-202 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V306)

Translation: The structural properties of probabilistic automata are investigated. The probabilistic automaton $M = (X, Y, S, \langle M(x) \rangle, F)$, where X is the set of states of the input, Y is the set of states of the output, S is the set of internal states, F is the deterministic function of the output which maps S on Y, and $\langle M(x) \rangle$ is a family of stochastic matrices of dimensionality $n \times n$, $n = |S|$, is transformed to the structural model $N = (X, Y, S, R, \langle p_m, \rho_i \rangle, f, F)$, where $s_j = f(s_i, \rho_i)$, and $\rho_i \in R$ appears with probability $p_m(\rho_i)$ depending on input $x_m \in X$. A study is made of the reducibility of probabilistic automata in terms of expansions of matrices of transitions into simple matrices. From this standpoint, a study is made of the stable states of probabilistic automata (a component part of the probabilistic automaton -- the deterministic automaton -- has a state s_j which is stable with respect to input ρ_i if the automaton can be put into state s_j under

USSR

PARSHENKOV, N. Ya., CHENTSOV, V. M., Avtomaty i upr. setyami svyazi, Moscow, "Nauka", 1971

the effect of input ρ_i, but the same input ρ_i does not change state s_i). Stable realizations of a probabilistic automaton are considered. Utilizing the structural model introduced, a problem is solved on decomposing self-contained probabilistic automata into quasi-series and parallel connection. G. Agasandyan.

2/2

CYBERNETICS, COMPUTERS AND AUTOMATION TECHNOLOGY

Automata

USSR

PARSHENKOV, N.Ya., and CHENTSOV, V.M.

"Obtaining the Reduced Form of a Stochastic Automaton"

Moscow, Diskretnyye Avtomaty i Seti Svyazi, 1970, pp 136-141

Abstract: The article proves that the method of finding the reduced form of a stochastic automaton can be reduced to the problem of the minimization of a certain deterministic automaton. The model of Moore's stochastic automaton with a determinate output function is used. Whereas the reduced form is unique for a deterministic automaton, two cases are possible for a stochastic automaton; viz., the machine has a unique reduced form or has a continuum of different reduced forms. Two assertions are formulated and proved, the validity of which means that the problem of finding the reduced form of a stochastic automaton can be reduced to the problem of the minimization of deterministic automata defined by the set of expansions of the initial stochastic automaton.

1/1

USSR

UDC: 577.4

PARSHENKOV, N. Ya. and CHENTSOV, V. M.

"Problems in the Theory of Probability Automata"

Moscow, v sb. Avtomaty i upr. setyami svyazi (Automata and the Control of Communications Networks--collection of works) "Nauka," 1971, pp 180-202 (from RZh--Matematika, No 6,1972, Abstract No 6V306)

Translation: The structural characteristics of probability automata are studied. The probability automaton $M = (X,Y,S,\langle M(x)\rangle,F)$ where X is a set of input constants, Y is a set of output constants, S is a set of inner constants, F is a given output function transforming S into Y, $\langle M(x)\rangle$ is a family of n n stochastic matrices, $n = |S|$ is converted into a structural model $N = (X,Y,S,R,\langle p_m(\rho_i)\rangle,f,F)$, where $s_j = f(s_i,\rho_i)$, while $\rho_i \in R$ shows up with a probability of $p_m(\rho_i)$ depending on the input $x_m \in X$. The reducibility of probability automata in terms of transition matrix expansions to simple matrices is considered. From this point of view, a study is made of the stable states of probability automata (a component part of the probability automaton, the determinate

USSR

PARSHENKOV, N. YA., and CHENTSOV, V. M., V sb. Avtomaty i upr. setyami svyazi, "Nauka," 1971, pp 180-202

automaton, has a stable state s_j for the input ρ_i if, under the action of the input ρ_i, the automaton can fall into the state s_j; but that input ρ_i does not change the state s_j). Stable realizations of the probability automaton are considered. Through the use of a structural model for autonomous probability automata, the problem of their decomposition into quasi-sequential and parallel combinations is solved.

2/2

1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CORRECTION OF THE WATER AND SALT METABOLISM IN PATIENTS BFTER OPERATIONS ON THE STOMACH -U-

AUTHOR-(05)-SHKROB, O.S., DREYZINA, A.M., SOLOMATINA, N.F., KUZMINA, L.N., PARSHENKOVA, O.I.

P

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 60-65

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, SURGERY, STOMACH, DIGESTIVE SYSTEM, ELECTROLYTE, BLOOD CIRCULATION, BLOOD PLASMA, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1236 STEP NO--UR/0531/70/000/004/0060/0065

CIRC ACCESSION NO--AP0054131

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS REPORT THE RESULTS OF CORRECTION OF WATER IONIC DISTURBANCES IN PATIENTS OPERATED ON THE STOMACH. A TOTAL OF 120 PATIENTS SUBJECTED TO GASTRECTOMY, RESECTION OF THE STOMACH AND PALLIATIVE OPERATIONS WERE EXAMINED. CORRECTION OF HYDROIONIC DISTURBANCES WAS CARRIED OUT FROM THE FIRST DAY AFTER THE OPERATION AND CONSISTED IN OBLIGATORY USE OF POLYIONIC SOLUTIONS WITH DUE CONSIDERATION OF THE LOOS OF ELECTROLYTES. DYNAMIC INVESTIGATIONS OF PLASMA AND URINARY ELECTROLYTES, VOLUME OF CIRCULATING BLOOD, PLASMA, CIRCULATING PROTEIN, HEMOGLOBIN, HEMATOCRIT, VOLUME OF INTRACELLULAR AND TOTAL WATER AGAINST THE BACKGROUND OF THE SOLUTIONS ADMINISTERED DURING PARENTERAL NUTRITION REVEALED NO ESSENTIAL FLUCTUATIONS. THIS TESTIFIED TO THE FACT THAT THE EMPLOYED METHOD OF PARENTERAL NUTRITION IN PATIENTS AFTER OPERATIONS ON THE GASTROINTESTINAL TRACT COMPENSATES THE WATER AND SALT DEFICIENCY. AS THE RESULT OF THE ABOVE MENTIONED TREATMENT DURING THE LAST TWO YEARS NO SYMPTOMS OF DEHYDRATION AND DYSELECTROLYTEMIA WERE OBSERVED.

UNCLASSIFIED

USSR UDC: 620.193.4

SUKHOTIN, A. M., SEMERIKOVA, I. A., KRIVITSKAYA, N. L., PARSHKOV, I. S.

"Corrosion of Metals in Freon 11 (CCl_3F) at 50-250° C"

Moscow, Zashchita Metallov, Vol 9, No 4, Jul-Aug 73, pp 402-406.

Abstract: This work summarizes and supplements data produced by the same authors earlier on the corrosion resistance of metal materials in freon 11 at temperatures of 50 to 250° C. The corrosion behavior of steels types 3, 1Kh13 and Kh18N10T, N2 nickel, monel metal NMZhMts 82-2.5-1.5, M1 copper, AD1 aluminum, SO lead, BrA5 bronze and L062 brass was studied. The corrosion tests were performed in 1.5 l autoclaves of Kh18N10T steel. The corrosion rate was determined gravimetrically. During the tests, the freon 11 was partially decomposed, increasingly at increasing temperatures. The corrosion rates determined varied widely with type of material and temperature.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--FRACTIONATION OF POLYMERS BY LIQUID EXTRACTION. II. FRACTIONATION
OF POLY,VINYLPYRROLIDONE IN A WATER.N,BUTYL ALCOHOL SYSTEM -U-
AUTHOR-(02)-PARSHIKOV, I.A., SIDELKOVSKAYA, F.P.

P

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 1170-1

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FRACTIONATION, POLYMER, SOLVENT EXTRACTION, VINYL COMPOUND,
KETONE, PYRROLIDINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1957 STEP NO--UR/0080/70/043/005/1170/1171

CIRC ACCESSION NO--AP0132218
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132218
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PARTITION COEFFS. (K) OF POLY(VINYLPYRROLIDONE) (I) IN THE TITLE SYSTEM CHANGE WITH THE TEMP. E.G., K OF I (MOL. WT. 35,000) WERE 7.1 AND 3.7 AT 50DEGREES AND 70DEGREES, RESP. THIS PROPERTY IS SUGGESTED FOR USE IN LARGE SCALE, CONTINUOUS EXTN. CONCN. OF I, WITHOUT THE NECESSITY OF SOLVENT EVAPN.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--FRACTIONATION OF POLYMERS BY A LIQUID EXTRACTION METHOD. I. INVERSION PHENOMENON DURING THE PARTITION OF POLY,N,VIYLPYRROLIDINONE,

AUTHOR--PARSHIKOV, I.A.

P

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 933-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMER, PYRROLIDINE, KETONE, BUTANOL, WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1264 STEP NO--UR/0080/70/043/004/0933/0936

CIRC ACCESSION NO--AP0128680

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0128680
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PARTITION COEFF. (K) OF POLY(N,VINYLPYRROLIDINONE) (I) IN WATER,BUOH IS 1 AT 61.3 PLUS OR MINUS 0.2DEGREES. BELOW THIS TEMP. K INCREASES TO 10 PRIME2 (AT 20DEGREES), AND ABOVE K DECREASES TO 10 PRIME NEGATIVE2 (AT 90DEGREES). K IS DEFINED BY THE REALTION: K EQUALS CONCN. OF I IN WATER-CONCN. OF I IN BUOH. INCREASE OF TEMP. DECREASES THE RATE OF BUOH WATER PAHSE SEPN.

UNCLASSIFIED

Miscellaneous

USSR UDC 669.28:621.78

ZAKHAROV, A. M., NOVIKOV, I. I., PARSHIKOV, V. G., and PORTNOY, V, K.,
Moscow, Institute of Steel and Alloys

"Age-Hardening of Molybdenum Alloys with Titanium and Zirconium Carbides"

Moscow, Metallovedeniye, No 6, 1971, pp 48-50

Abstract: Age-hardening from 900°C to 1500°C for 0.5-20 hrs in the TVV-2A furnace with a residual gas pressure of 2×10^5 mm Hg of molybdenum alloys of systems Mo-Ti-C, Mo-Zr-C, and Mo-Ti-Zr-C, hardened from 2100°C, was investigated by the method of hardness measuring. The phase composition in late aging stages was analyzed electron-microscopically. In the aging of hardened alloys for 10-20 hrs, the same phases are isolated from the molybdenum solution which must be present in the alloys in accordance with equilibrium state diagrams of Mo-Ti-C, Mo-Zr-C, and Mo-Ti-Zr-C. Aging at 1200-1300°C (0.5-0.55 melting temperature) for 2-4 hrs produced maximum hardness. The ZrC carbide hardens most intensely. The effects of aging temperature and duration on the hardness are shown. The Mo_2C carbide decreases the hardening effect by aging. Two figures, two tables, eight bibliographic references.

1/1

USSR UDC 669.295:620.192.46

PARSHIN, A. M., USHKOV, S. S., and YARMOLOVICH, I. I.

"Titanium Alloy Cracking During Aging"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 43-46

Abstract: In a study of titanium alloy of the VT-22 type with varying alloying: 6% Al and 6.5% beta-stabilizing element (3.0% Mo, 2.5% Fe, 0.5% Cr, and 0.5% Mn) it was observed that extrusions, 120 mm in diameter and 10-12 mm thick, quenched in water after one hour at 870°C, cracked during subsequent aging. The most intensive cracking during aging after quenching from 870°C occurs at 400°C, where cracks are noted after 5-10 hours at the aging temperature. Above 500°C and below 200°C the formation of cracks was not detected, even after 2500 hours. Studies showed that the cracking during aging was caused by the nucleation and development of cracks as a result of structural stresses building up from the precipitation of both the alpha- and beta-phases. To avoid crack development in VT-22 titanium alloys it is recommended that rapid heating rates between 250 and 500 C be used and that the aging process be performed above 500°C. Five figures, one table, nine bibliographic references.

1/1

Corrosion

USSR

UDC 669.265'24.018.44:620.196

AZBUKIN, V. G., GORBAKON, A. A., PARSHIN, A. M.

"Increasing the High-Temperature Strength and Resistance to Intercrystalline Corrosion of Kh20N45 Alloys"

V sb Metallovedeniye (Physical Metallurgy -- collection of works), No 15, Leningrad, Sudostroyeniye Press, 1971, pp 92-100 (from Rzh-Metallurgiya, No 4, Apr 72, Abstract 41730)

Translation: The properties of the Kh20N45 alloy mastered by industry are analyzed from the point of view of the suitability of using this alloy in thermal power engineering. It was demonstrated that this alloy, which has high resistance to chloride stress-corrosion cracking, has comparatively low-temperature strength and extremely unstable resistance to corrosion. A study was made of the effect of stabilizing additions of Ti and Nb and of the conditions of austenitizing and additional provocation heating in the 500-850° range on the stress-rupture strength. The possibility of increasing the high-temperature strength (stress-rupture strength and deformation capacity) of alloys of this type by additional alloying with molybdenum and their resistance to corrosion by limiting the C content and increasing the Nb content (Nb:C ≥ 24) is demonstrated. Three illustrations, four tables, and an 18-entry bibliography.

1/1

USSR

UDC 669.245.26.018.44[539.4+539.214]

KOLOSOV, I. Ye., PARSHIN, A. M.

"Long-Term Strength and Ductility of Kh20N45B Alloy"

Metallovedeniye[Metal Science -- Collection of Works], No. 14, Leningrad, Sudostroyeniye Press, 1970, pp 140-144. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I724 by the authors).

Translation: The long-term strength and ductility of fine-grained and large-grained type Kh20N45B alloy are studied at 450-850°. This alloy has relatively high deformation capacity over a broad range of temperatures. This results from the preferential separation of the secondary intermetallic phase $NiNb_2$ within the grains of the solid solution, decreasing localization of deformations along grain boundaries. 4 figs; 1 table; 6 biblio refs.

1/1

USSR UDC 660.14.018.293

PARSHIN, A. M.
[redacted]

Struktura, Prochnost' i Plastichnost' Nerzhaveyushchikh i Zharoprochnykh Staley i Splavov, Primenyayemykh v Sudostroyenii (Structure, Strength, and Plasticity of Stainless and Heat-Resistant Steels and Alloys Used in the Shipbuilding Industry), "Sudostroyeniye" Publishing House, Leningrad, 1972, 288 pp

Translation of Annotation: This book considers the structural transformations taking place in stainless and heat-resistant steels and alloys used in the shipbuilding industry. Short-term changes of mechanical properties and basic criteria of heat-resistance were studied as functions of prolonged heating within a wide range of temperatures in the presence of loading. Special attention is given to the effect of grain size on the deformation capacity of heat-resistant materials.

The book is intended for engineers and scientists at scientific research institutes, design organizations, plants, as well as for students at higher educational institutions and aspirants who are specialializing in metal science and in the physics of metals.

Translation of Table of Contents:

	Page
Preface	3

USSR

PARSHIN, A. M., Struktura, Prochnost' i Plastichnost' Nerzhaveyushchikh i Zharoprochnykh Staley i Splavov, Primenyayemykh v Sudostroyenii, 1972, 288 pp

Chapter I. Structural transformations in austenite chromium-nickel steels and alloys 5
1. Mechanism and sequence of the σ-phase formation from δ-ferrite and austenite 5
2. Solution mechanism of the σ-phase in austenite steels of type 18-8 and stability of δ-ferrite at high temperatures 16
3. Solubility of niobium and titanium carbonitrides at high temperatures 23
4. Structural transformations in 1Kh18N9T steels 31
5. Microstructure of 1Kh18N11B steel 47
6. Some characteristics of the microstructural transformations in Kh14N14V2M steels 48
7. Phase composition and microstructure of Kh16N15M3B steel 52
8. Kinetics of phase transformations in Kh20N45B alloy 53
9. Structural transformations in Kh12N20T3R steel during long aging 62
10. Phase composition and structural changes in Kh18N22V2T2 steel 67
11. Structural transformations in KhN77TYuR alloys 74

2/5

USSR

PARSHIN, A. M., Struktura, Prochnost' i Plastichnost' Nerzhaveyushchikh i Zharoprochnykh Staley i Splavov, Primenyayemykh v Sudostroyenii, 1972, 288 pp

12. Characteristics of structural transformations in austenite chromium-nickel steels and alloys 87
Chapter II. Pattern of precipitation hardening and embrittlement of austenite chromium-nickel steels and alloys during long-aging and their relation to structure 94
13. Precipitation hardening and embrittlement of Kh12N20T3R steel during long aging 94
14. The effect of structural transformations on the short-term mechanical properties of Kh18N22V2T2 steel 100
15. The effect of structural transformations on the short-term mechanical properties of KhN77TYuR alloy 102
16. The effect of structure of the 1Kh18N9T steel on its mechanical properties during long aging 109
17. Relation between mechanical properties and structural changes in 3Kh19N9VMBT steel 111
18. Changes of the short-term mechanical properties after long aging of steels with carbide hardening 113
19. Relation between structural transformations and mechanical properties of Kh20N45B alloy 115

USSR

PARSHIN, A. M., Struktura, Prochnost' i Plastichnost' Nerzhaveyushchikh i Zharoprochnykh Staley i Splavov, Primenyayemykh v Sudostroyenii, 1972, 288 pp

20. The nature of work hardening and embrittlement 117
Chapter III. Study of the plasticity decrease during static short-term tension 127
21. A short-term plasticity of austenite steels and alloys in relation to temperature and grain size 127
22. The effect of structural transformations on short-term plasticity of austenite steels and alloys 133
Chapter IV. Stress-rupture strength and deformation capability of austenite chromium-nickel steels and alloys in relation to structure 136
23. Study of the heat-resistance criteria of 1Kh18N9T steel and the effect of structural transformations on the resistance to rupture 137
24. Stress-rupture strength and the deformation capability of Kh16N15M3B steel in relation to structure 167
25. Stress-rupture strength and plasticity of Kh20N45B alloy 175
26. Deformation capacity of Kh18N22V2T2 steel and the relationship between brittle fracture and structural transformations 178

4/5

USSR

PARSHIN, A. M., Struktura, Prochnost' i Plastichnost' Nerzhaveyushchikh i Zharoprochnykh Staley i Splavov, Primenyayemykh v Sudostroyenii, 1972, 288 pp

27. Relation between a low deformation capability of Kh12N20T3R steel and structural transformations occurring during the heating 190
28. Relation between structural transformations and the deformation capability of Nimonic alloy 197
29. Time-, temperature-, and strength-related dependence of the long-term plasticity of austenite chromium-nickel steels and alloys 206
30. Deflections of stress-rupture strength curves 215
31. Origin and propagation of cracks 276
32. Deformation capacity as one of the characteristics which determines the performance of alloys at high temperatures 278
References 279

Agronomy

PARSHIN, B.

p/s

JPRS 55726
17 Apr '72

INCREASE IN OATS CULTIVATION URGED

/Article by Agronomists B. Parshin and A. Pavlyuchenko; Moscow, Sel'skaya Zhizn', Russian, 3 March 1972, p 2/

The directives of the 24th CPSU Congress concerning the Five-year Plan for Development of the National Economy for 1971-1975 call for further increases in the production of grain, and particularly fodder crops, which are necessary for meeting the requirements of the livestock industry for feed.

One of the important components of concentrated feed is oats, which has great significance in growing young steers and in feeding livestock. Of definite value are oat stalks, which are excellent coarse fodder. When mixed with annual leguminous crops, oats are used as hay, silage, and green fodder. Feeding oats and mixtures in their green form permits the feeding of animals with high quality succulent fodders over a long period.

Oats contain more than 13 percent protein, 4-6 percent fats, and about 40 percent starch. The fats in oats are easily assimilated. The albumin differs from that of wheat and barley in its higher content of amino acids, which are not replaceable by human and animal organisms. These acids are arginine, lysine, and tryptophan. The kernels have a great concentration of vitamins, as well as organic compounds of iron, calcium, and phosphorus. Oats are important as an industrial crop, and are extensively processed into various types of oat groats.

According to their biological peculiarities, oats belong to the moisture-loving crops. They are less resistant to drought conditions than barley or spring wheat. In the length of their vegetative period they are similar to spring

Radiation Chemistry

USSR UDC 535.379

PARSHIN, G. S., BULGAKOV, R. G., KAZAKOV, V. P., and DMITRIYEVA, YE. V., Institue of the Chemistry, Bashkir Branch, Academy of Sciences USSR

"Chemiluminescence of Uranyl in Concentrated Sulfuric Acid, Produced by Ozone"

Moscow, Khimiya Vysokikh Energiy, Vol 6, No 6, Nov-Dec 72, pp 498-501

Abstract: Chemiluminescence of UO_2^{2+} solutions in concentrated sulfuric acid caused by ozone was studied. Chemiluminescence occurs as a result of ozone breakdown on the reaction vessel walls. Uranyl ions do not catalyze this breakdown. On the basis of the results obtained from the determination of the spectral range of luminescence it was concluded that oxygen and uranyl act as the emittors of chemiluminescence. It was established that processes responsible for the luminescence are determined to a great extent by the reaction vessel walls.

1/2 047 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CELLULAR MATERIALS BASED ON HOLLOW GLASS MICROSPHERES AND POLYMER BINDERS -U-

AUTHOR-(03)-KRASNIKOVA, I.V., PETRILENKOVA, YE.B., PARSHINA, N.K.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 45-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--IMPACT STRENGTH, EPOXY RESIN, POLYMER BINDER, GLASS, DIELECTRIC PROPERTY, PLASTIC MECHANICAL PROPERTY, INSULATING MATERIAL, SHIPBUILDING ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1098 STEP NO--UR/0191/70/000/003/0045/0046

CIRC ACCESSION NO--AP0128525

UNCLASSIFIED

2/2 047 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128525

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES AND USES OF HIGH,IMPACT CELLULAR MEATERIALS EDS (PREPD. FROM EPOXY RESIN BINDERS AND HOLLOW GLASS BEADS) ARE DESCRIBED. EDS EXHIBITED SUPERIOR PHYSICOMECH., THERMAL. AND DIELEC. PROPERTIES, AND A LOW H SUB2 O ABSORPTION UNDER ATM. OR HYDROSTATIC PRESSURES. EDS IS USEFUL AS SOUND AND HEAT INSULATOR, AND FOR THE CONSTRUCTION OF MARINE BOATS.

UNCLASSIFIED

USSR UDC. 621.372.853

PARSHIN, P. I., MYASNIKOV, G. G.

"A Device for Protecting a Magnetron From Breakdown"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298978, division H, filed 22 Sep 69, published 16 Mar 71, p 179

Translation: This Author's Certificate introduces a device for protecting a magnetron from breakdown. The unit contains a waveguide section, blocking relay, power supply and electrode. As a distinguishing feature of the patent, to increase the concentration of charged particles under the electrode, a dielectric diaphragm is mounted between the magnetron and the above-mentioned electrode.

1/1

USSR UDC: 629.78.015.4

SHELOMOV, N.A. and PARSHIN, V.M.

"On Calculation of Shells With Null Gauss Curvature Under Boundary Load on Part of the Perimeter"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. temat. nauch.-tekhn. sb. (Aircraft Building and Aviation Technology. Interagency Topical Scientific-Technical Symposium) 1972, vyp 28, pp 74-78 (from Referativnyy Zhurnal-Raketostroyeniye, No 7, 1972, Abstract No 7.41.212)

Translation: Investigation is conducted on the possibility of applying the calculation method of zero-moment state and boundary effect to the determination of stress-strain condition of shells with null curvature, loaded normally to the shell along part of the perimeter of the transverse section. A cantilever conical shell is treated as an example (1 illustration, resume).

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--FORECASTS OF LIQUID WATER CONTENT OF LARGE RIVERS AND RUNOFF
CONTROL -U-
AUTHOR--PARSHIN, V.N.

P

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 2, PP 3-11

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--RUNOFF, WATER, RIVER, FLOW CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0868 STEP NO--UR/0050/70/000/002/0003/0011

CIRC ACCESSION NO--AP0104304
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104304

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF DATA OF 1969 A BRIEF ANALYSIS OF FORECAST ACCURACY OF WATER INFLOW IN LARGE WATER STORAGE BASINS OF THE USSR IS MADE, AND RESULTS OF THEIR USE FOR DETERMINATION OF ADVANTEGEOUS RUNOFF CONTROL FOR THE NATIONAL ECONOMY ARE STATED.

UNCLASSIFIED

1

USSR

UDC 577.1:615.7/9

DOBROV, N. N., KOZLOV, V. A., PARSHIN, V. S., and SAKSONOV, P. P.

"Effect of Cystamine in a Mixture With Sympathomimetic Amines on Repair Processes After Exposure to Radiation and Overloads"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 285-288 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1718 from summary)

Translation: Mice were subjected to gamma-irradiation (250 roentgens) and the effect of acceleration on a centrifuge (15 and 30 units, 5 min) 50 min before and 30 min after irradiation. The radioprotector cystamine (100 mg/kg) in a mixture with amphetamine (1.5 mg/kg) and adrenaline (0.15 mg/kh) was injected intraperitoneally 55 min before irradiation, and in the event of combined exposure 5 min before overload. The rate of repair of the reversible portion of radiation damage, as determined from the half-recovery period of the animals' radioresistance, was used as the criterion of protective action. The authors established that the protective action of cystamine is approximately equal for combined exposure and for irradiation alone.

1/1

USSR p UDC 678.643'42'5-405.8.01:53

KRASNIKOVA, T. V., PETRILENKOVA, E. B., PARSHINA, N. K. (Deceased)

"Foam Materials Composed of Hollow Glass Microspheres and Polymeric Binders"

Moscow, Plasticheskiye Massy, No 3, 1970, pp 45-46

Abstract: Small hollow glass microspheres covered with EDS-6 or EDS-7 epoxy resin binder allowing thorough adhesion of all microspheres in one solid mass were developed as a water resistant foam material. The above resins are strong, water resisting cements, while other resins, such as EDS-5, contain hydroxyl groups and are hydrophyilic. The resin covered microspheres are very hydrostatic, even under considerable pressure. They can be used as gas containers and sound proofing material, and they can satisfy many aquatic needs.

1/1

USSR

UDC 547.341.07

PETROV, K. A., PARSHINA, V. A., YEROKHINA, T. S., and PETROVA, G. M.

"A Method of Producing Hydroxymethyl-bis-(dialkylaminomethylene) Phosphine Oxides"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, Jun 73, Author's Certificate No 375300, Division C, filed 9 Aug 71, published 23 Mar 73, p 52

Translation: This Author's Certificate introduces: 1. A method of producing hydroxymethyl-bis-(dialkylaminomethylene) phosphine oxides. As a distinguishing feature of the patent, trioxymethyl phosphine oxide is reacted with a lower dialkylamine ($C \leq 4$) in the presence of heating with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that heating is done to 100-140°C in a sealed tube.

1/1

USSR

UDC 547.234+547.241

PETROV, K. A., PARSHINA, V. A., SHEFER, G.

"Hydrazides of Phosphorus Acids"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1234-1236

Abstract: Hydrazine, N,N-dimethyhydrazine, phenylhydrazine, and acetylhydrazine react with the monochlorides of 2-chlorophenyl esters of phosphoric and phosphonic acids as well as their thio analogs. The reaction was run in benzene and at equimolar ratios of the reagents. The corresponding monohydrazide derivatives were formed. The nature of the hydrazine has no effect on the reaction rate. The products obtained are relatively stable compounds with a distinct amine odor, soluble in organic solvents, and insoluble in water. The IR spectra of the products obtained exhibit the absorption bands characteristic for the P=O, P-O-C, P-O-C, $P-OC_6H_6Cl$, C_5H_5, and P-N groups.

1/1

USSR

1

BUNKIN, F. V., KRASYUK, I. K., MARCHENKO, V. M., PASHININ, P. P., PROKHOROV, A. M., Physics Institute imeni P. N. Lebedev, Academy of Sciences, USSR

"Investigation of the Structure of a Spark Produced in the Focussing of a Picosecond Laser Pulse in Gases"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 4, 1971, pp 1326-1331

Abstract: Research is conducted on the formation of points of strong nonlinear scattering of laser radiation and breakdown in air, nitrogen, and argon due to the focussing of a ruby laser radiation pulse with a duration of 20 -- 100 picoseconds and a power of about 2 x 10^9 watts. The mechanism of this phenomenon, which is linked to the self-focussing of laser radiation in a gas, is discussed. An analysis is given of the results of determination of the breakdown thresholds by means of short-focus and long-focus lenses. The part played by the self-focussing of laser radiation in the development of breakdown at optical frequencies is assessed. 3 figures. 16 bibliographic entries.

1/1

PASHINTSEV, Yu. I.

(3)

SO: JPRS 59279
14 June 73

MECHANISM OF THE DISAPPEARANCE OF PACKING DEFECTS IN SILICON EPITAXIAL FILMS DURING CERTAIN THERMAL PROCESSES

with Semiconductor Materials

[Article by R. A. Kovalev, B. I. Kozlov, Yu. I. Pashintsev; Novosibirsk, Protsessy, Rosta i Struktura Monokristallicheskikh Sloyev Poluprovodnikov -- Trudy Simpoziuma, Russian, Part 2, 1969, pp 93-96]

One of the most widespread structural defects of epitaxial films is the packing defects. When pickling in selective pickling agents the packing defects are revealed in the form of flat configurations or individual lines. For epitaxial films with a diamond type crystal lattice oriented in the (111) plane, the tetrahedral packing defects which give etching configurations in the form of right triangles are characteristic. The morphology and the possible causes of nucleation of the tetrahedral packing defects and the defects appearing in the form of individual lines are described in detail [1-5]. Prolonged annealing in an inert atmosphere has no effect on the packing defects [4, 6]. However, it is noticeable that after annealing in hydrogen, in a vacuum or after diffusion of the admixtures, the number of packing defects decreases [4, 6, 7]. No variations in their morphology are noted in this case.

We have observed analogous facts of a decrease in the number of defects. We also recorded this defect during thermal oxidation of silicon epitaxial films in wet oxygen. It must be noted that during annealing in hydrogen during the boron diffusion process and also during thermal oxidation of the films, the variation in morphology and packing defects was observed. Previously there were no indications of such facts in the literature.

As the specimens we used silicon epitaxial films of n-type conductivity with an admixture concentration of $5 \cdot 10^{16}$ cm^{-3} alloyed with phosphorus. The films were oriented in the (111) plane.

The specimens were oxidized for 1 hour at a temperature of 1,200° C.

The experiments with respect to annealing in hydrogen and boron diffusion were described previously [8].

Before oxidation, the packing defects were revealed by a selective etching agent (1 part HF + 1 part 33 percent CrO_3 solution in deionized water).

1

USSR

UDC: 535.651

GUKASOV, V. R., KARABEGOV, M. A., MAILOV, Yu. G., MILYUKOV, L. Ya., PASHKINA, M. N.

"Some Analytic Capabilities of the SFK-601 Spectrophotometer"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 20-24 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1090 by V. S. Krasnova)

Translation: A functional diagram and results of experimental determinations of characteristics of the SFK-601 spectrophotometer (spectrocolorimeter), developed by the Special Design Bureau AP [Expansion unknown - tr] are presented. The SKF-601 is produced in a modular version using a basic monochromator unit with a modulator. The interchangeable light sources are attached to one side of the base unit, the attachments for performance of various measurements to the other side: absorptiometry, turbidimetry, nephelometry with a goniometric device and fluorometry. The operating principle of the device is based on measurement of the difference between 2 modulated light beams passing through cuvettes with the tested and comparison fluids, then going on to 1 light receiver. The energy of the light streams is converted to electrical signals, the difference of which after amplification is recorded by ʒSR UDC: 535.651

GUKASOV, V. R., KARABEGOV, M. A., MAILOV, Yu. G., MILYUKOV, L. Ya., PASHKINA, M. N., Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisis, 1971, pp 20-24 (translated from Referativnyy Zhurnal Metrologiya i Izmerital'naya Tekhnika, No 2, 1972, Abstract No 2.32.1090 by V. S. Krasnova)

a microameter. The results of investigation of the operating characteristics of the SKF-601 in various operating modes has shown that the error is not over 1 %, nonlinearity of calibrated graphs 1-2%. The reproducibility of indications is 1% of the scale length of the device. 1 figure

2/2

USSR

UDC: 669.01:620.181.001.5

PASHKOV, P. O., POLYAKOVA, I. I.

"Surface Phenomena Upon High-Speed Collision of Metals"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 2, 1972, pp 332-334.

Abstract: Earlier works have established that after the shock wave created when a plate is impacted by an explosive charge, high-temperature phases (austenite in iron and beta-titanium in titanium) are found at depths of up to 30μ in the surface layer of specimens of armco iron and technically pure titanium. This report studies the results of investigation of the surface layers of various metals following high-speed collision. The experiments were performed in an atmosphere of argon at liquid nitrogen temperatures. The results produced indicate complex phenomena in the surface layers upon high-speed collision of iron, cobalt, zirconium, titanium, and nickel.

1/1

USSR UDC 621.762.3

GRISHINA, A. I., MANTAROSHIN, A. P., PASHKOV, P. O.

"Structure and Certain Properties of Alloys Produced by Melting Mixtures of Metal Powders with Impact Loading"

Metallovedeniye i Prochnost' Materialov, T. 3 [Metal Science and the Strength of Materials, Vol 3 -- Collection of Works], Volgograd, 1971, pp 285-294, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G470 by S. Krivonosova).

Translation: The regularities of formation of solid solutions of substitution in systems Cu-Ni and Fe-Ni are studied. The structure and properties of the melted zone with impact compression of mixtures of powders are determined by the shape of the state diagram of the components included in the mixtures. A high heating rate and brief impact loading result in the formation of nonequilibrium solid solutions in the melted zone with high contents of impurities in the lattice. 6 Figures; 3 Tables; 3 Biblio. Refs.

1/1

USSR

UDC 621.762.001

LIKHOBABIN, V. A., MANTAROSHIN, A. P., PASHKOV, P. O., ROGOZIN, V. D.

"Shock Compacting of Metal Powders"

V sb. Metallovedeniye i prochnost' materialov. T. 3 (Physical Metallurgy and Strength of Materials. Vol 3.-- collection of works), Volgograd, 1971, pp 272-285 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G384)

Translation: A study was made of the laws of shock compacting of metal powders, and the basic parameters determining the mechanical properties of the material obtained are discovered. Eight illustrations, 2 tables, and a 6-entry bibliography.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PHOTOCHROMISM OF ORGANIC COMPOUNDS. III. EFFECT OF TEMPERATURE AND SOLVENT NATURE ON REVERSIBLE AND IRREVERSIBLE PHOTOREACTIONS OF 2,(2

AUTHOR-(03)-BAZOV, V.P., PARSHUTKIN, A.A., KRONGAUZ, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 174-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOTOCHEMISTRY, PYRIDINE, AROMATIC NITRO COMPOUND, CHEMICAL REACTION KINETICS, STYRENE, METHACRYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1625 STEP NO--UR/0456/70/004/002/0174/0175

CIRC ACCESSION NO--AP0112619

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 019

CIRC ACCESSION NO--AP0112619

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS WAS STUDIED OF
REVERSIBLE AND IRRVERSIBLE PHOTOREACTIONS OF THE TITLE COMPD. (I) IN
ETOH SOLNS. AT 77DEGREESK, IN THIN LAYERS OF POLYSTYRENE AND
PLOYMETHACRYLATE AT 195 AND 77DEGREESK, AND IN C SUB7 H SUB16 SOLNS. AT
195DEGREESK. IN THE GLASS LIKE ETOH MATRIX AT 77DEGREESK, PRODUCTS II
AND III ARE FORMED DIRECTLY FROM I INREVERSIBLE AND IRREVERSIBLE
REACTIONS, RESP., WITH QUANTUM YIELDS OF 0.08 AND 0.02 MOLE-EINSTEIN.
THE QUANTUM YIELDS ARE MARKEDLY LOWER THAN THOSE AT 195DEGREESK; THIS IS
DUE TO THE EXISTENCE OF ETOH IN SOLID STATE AT 77DEGREESK. THE
REPLACEMENT OF POLAR ETOH BY NONPOLAR C SUB7 H SUB16 AT 195DEGREESK
LOWERS THE QUANTUM YIELD OF THE REVERSIBLE FORMATION OF II AND INCREASES
THE IRREVERSIBLE REACTION YIELD. FACILITY: FIZ. KHIM. INST. IM.
KARPOVA, MOSCOW, USSR.

1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PHOTOCHROMISM OF ORGANIC COMPOUNDS. II. KINETICS OF REVERSIBLE AND IRREVERSIBLE PHOTOREACTIONS OF 2,2 PRIME, 4 PRIME,DINITROBENZYL PYRIDINE

AUTHOR-(03)-PARSHUTKIN, A.A., BAZOV, V.P., KRONGAUZ, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 131-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RADIATION EFFECT, CHEMICAL REACTION KINETICS, AROMATIC NITRO COMPOUND, PYRIDINE, PHOTOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1626 STEP NO--UR/0456/70/004/002/0131/0138

CIRC ACCESSION NO--AP0112620

UNCLASSIFIED

CIRC ACCESSION NO--AP0112620

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIRECTION AND QUANTUM YIELDS WERE STUDIED ON PHOTOCHEM. REACTIONS OCCURRING IN SOLNS. OF THE TITEL COMPD. (I) IN ETOH AT 195DEGREESK. THE SPECTRUM OF THE SOLNS. IS NOT CHANGED DURING THE REACTIONS, WITH THE EXCEPTION OF THE APPEARANCE OF A NEW ABSORPTION BAND AT 567.5 NM, WHICH BELONGS TO A COLORED PRODUCT (II) FORMED DIRECTLY AND REVERSIBLY FROM I. IN IRRADIATING AN ETOH SOLN. OF I BY MONOCHROMATIC RADIATION (366 NM) WITH THE INTENSITY OF 6.9 TIMES 10 PRIME NEGATIVE5 EINSTEIN-L.-SEC, THE DEPENDENCE OF THE ABSORBANCE AT 567 NM ON TIME HAS A MAS. AT SIMILAR TO 24 MIN. THE ANAL. OF THE DEPENDENCE SHOWED THAT 2 SIDE REACTION PRODUCTS ARE ALSO FORMED IN WHICH BY PRODUCTS III AND IV, HAVING THE SAME ABSORPTION SPECTRUM AS I, ARE FORMED DIRECTLY AND IRREVERSIBLY FROM I AND II, RESP. EQUATIONS WERE DERIVED FOR DETG. MOLAR ABSORPTIVITIES AND QUANTUM YIELDS.

FACILITY: FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

USSR UDC 632.95

SHOGAM, S. M., STONOV, L. D., TROITSKAYA, T. V., PARSHUTIN, S. M., and BARANOVA, L. N.

"Granulated Herbicides for Control of Overgrowth on Reclamation and Drainage Ditches"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works,), vyp 1, Moscow, 1970, pp 216-224 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N532 by T. A. Belyayeva)

Translation: Formulas and a technique have been devised for the preparation of granulated herbicides (monuron, diuron, atrazine, simazine) having any prescribed resistance to elution by water, and hence carying effective lives, as well as any prescribed particle-size range. A procedure has been devised for determining resistance to elution by water by comparison with a sample of a granulated preparation of the same herbicide taken as a standard. The highest herbicidal activity is provided by preemergence application or by application during the growing period. Under rapid water-flow conditions, granulated diuron preparations that have been dried at 90° or subjected to prolonged drying at 60-70° are recommended.

1/1

USSR

UDC 632.95

PARSHUTIN, S. M., STONOV, L. D., ZABALUYEV, I. T., BATYROVA, M. SH., GALIFANOV, G. G., MULLIYEV, K. M., PAVLOVA, G. N., SHOGAM, S. M., KHRIPKO, T. V., KUR'YANOV, V. A., and KHRIPKO, V. G.

"Control of Overgrowth of Sewers and Drains in Turkmeniya"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 225-241 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N533 by T. A. Belyayeva)

Translation: The article compares the effectiveness and profitability of mechanical, manual, thermal biological and chemical methods of removing vegetation from drains. Data are given on results of herbicide tests and applications. To kill reeds, cattails and other weeds in sewers during the second and subsequent years of service, dalapon shows the greatest promise in doses of 24-30 kg/ha with the addition of wetting agent OP-7 or OP-10.

1/1

P

UDC: 621.391.14

USSR

BOROVSKIY, V. P., VAS'KOVSKIY, I. I., NIZHEGOL'SKIY, B. A., PARTALA, O. N., Kiev Polytechnical Institute

"A Multiphase Amplitude-Modulated Very Low Frequency Voltage Oscillator"

Moscow, Pribory i Tekhnika Eksperimenta, No 2, Mar/Apr 70, pp 139-140

Abstract: The authors describe a multiphase generator of periodic signals of arbitrary form approximated by a step function. Provision is made for amplitude modulation of the output signal. A schematic diagram of the oscillator is given, as well as data on the nonlinearity of the modulation characteristics and the coefficient of nonlinear distortions for the case of a sinusoidal signal. The oscillator may be used for power supply to a three-phase synchronous motor as well as in other applications.

1/1

Graphite

4

UDC 666.764.4:669.716:621.74

USSR

KARKLIT, A. K., SOKOLOV, A. N., LEBEDEVA, M. F., ZEGZHDA, V. P., Deceased, All-Union Institute of Refractories, SIMONOV, V. N., Leningrad Plant for Processing of Nonferrous Metals, ANDREYEV, V. F., PARTIN, I. A., CHEREPOK, G. V., Kuybyshev Metallurgical Plant imeni V. I. Lenin

"Graphite-Containing Products for Casting of Aluminum Alloys"

Ogneupory, No. 2, 1971, pp 13-15

Abstract: A composition and method of manufacture of graphite-containing refractory products of low heat conductivity for casting of aluminum and aluminum-based alloys have been developed. The reduction in heat conductivity is achieved by introducing asbestos to the mass and using low-temperature (700°C) roasting. The products have shown satisfactory strength in service.

1/1

P

UDC 517.9:539.3

USSR

PARTON, V. Z., KUDRYAVTSEV, B. A.

"Contact Problem in the Mechanics of Deformation of Porous Viscoelastic Media"

Leningrad, V sb. Probl. mekhan. tverd. deformir. tela (Problems in the Mechanics of a Solid Deformable Body -- collection of works), "Sudostroyeniye," 1970, pp 329-339 (from RZh-Matematika, No 7, Jul 1970, Abstract No 7B471)

Translation: The authors consider the plane contact problem of the mechanics of deformation of a viscoelastic medium. In view of the known isomorphism of phenomena, the solution found for a die (or crack) is also the solution for the corresponding thermoelastic problem. Authors' abstract.

1/1

Acc. Nr: AP0045914 Abstracting Service: 5/70 INTERNAT. AEROSPACE ABST. Ref. Code: UR 3663

P

A70-22466 # Interaction problems and inertia effect in the failure mechanics (Zadachi vzaimodeistviia i inertsionnyi effekt v mekhanike razrusheniia). V. Z. Parton (Vsesoiuznyi Zaochnyi Inzhenerno-Stroitel'nyi Institut, Moscow, USSR). *Problemy Prochnosti*, vol. 2, Jan. 1970, p. 56-63. 15 refs. In Russian.

Examination of a series of problems concerning steadily developing equilibrium cracks, where within certain load increase the failure does not results. An analysis is made of the dynamics problems for a case of a load periodically variable with time. Z.W.

AIS

1/1

REEL/FRAME
19780959

18

Acc. Nr: AP0045915

Abstracting Service: INTERNAT. AEROSPACE ABST. 5/70

Ref. Code: UR 3663

A70-22465 # Variational principle and its application to the solution of stability problems in failure mechanics (Variatsionnyi printsip i ego primenenie k resheniiu staticheskikh zadach mekhaniki razrusheniia). ~~V. Z. Parton~~ (Vsesoiuznyi Zaochnyi Inzhenerno-Stroitel'nyi Institut, Moscow, USSR). *Problemy Prochnosti*, vol. 2, Jan. 1970, p. 50-55. 15 refs. In Russian.

Application of a variational principle to the stability problems of the failure mechanics of arbitrary, linearly elastic bodies. The interaction problems are examined in terms of the crack theory. The inertia effect which decreases the breaking load is studied for dynamics problems involving the steady-state vibrations of bodies with cracks occurring during breakdown of ideally brittle bodies. Z.W.

AL5

1/1

18

REEL/FRAME
19780960

1/2 036 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--STRESS DISTRIBUTION IN LAMINAR COMPOSITES -U-

AUTHOR--PARTSEVSKIY, V.V.

P

COUNTRY OF INFO--USSR

SOURCE--MEKHANIKA POLIMEROV, VOL. 6, MAR.-APR. 1970, P. 319-325.

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--STRESS DISTRIBUTION, COMPOSITE MATERIAL, LAMINATED STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2121 STEP NO--UR/0374/70/006/000/0319/0325

CIRC ACCESSION NO--AP0125705
UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125705

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE MACHANISM OF FORCE TRANSFER IN LAMINAR COMPOSITE MATERIALS ON THE BASIS OF THE EQUATIONS OF BOLOTIN'S THEORY OF LAMINAR MEDIA (1963, 1965). A SOLUTION IS OBTAINED TO THE PLANE PROBLEM OF THE STRESS DISTRIBUTION IN THE MEDIUM IN THE PRESENCE OF LOADS ON THE BOUNDARY OF ONE OF THE REINFORCING LAYERS. CERTAIN APPROXIMATE CLUTIONS OBTAINED UNDER VARIOUS SIMPLIFYING ASSUMPTIONS ARE PRESENTED, AND THE LIMITS OF APPLICABILITY OF THESE SOLUTIONS ARE DISCUSSED. SIMPLE FORMULAS ARE PRESENTED FOR THE MAXIUM STRESSES IN THE BINDER LAYERS. THE RESULTS ARE USED IN DICUSSING THE MECHANISM OF FORCE TRANSFER IN LAMINAR MATERIALS. FACILITY: MOSKOVSKII ENERGETICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0042069 Ref. Code: UR 0422

D

PRIMARY SOURCE: Standarty i Kachestvo, 1970, Nr 1, pp 8-10

Problems of Standardization in New Sales Regulations. Partsiy, Ya. Ye.

The new Sales Regulations take into consideration the higher significance of standardization in improving the products' quality. They also stimulate introduction of standards in production and observance of standards by the producers.

MT

1/1

30

REEL/FRAME
19751970

USSR UDC 612-019

PARTSKHALADZE, N. N., Academy of Sciences Georgian SSR, Institute of Physiology

"Study of Several Physiological Indices in Rats During Hypothermy Produced by Various Methods"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 60, No 1, Oct 70, pp 189-191

Abstract: Combined administration of narcotics and hypothermy results in a more profound effect on the nerve center than when hypothermy and narcotics are administered separately. The exhalation of diethyl ether from the cooled organism was studied. The gas exchange of the animals served as a metabolic indicator during hypothermy. Hypothermy was produced in one test series by cooling of the animals under narcosis; in another test series, hypoxia and hypercapnia were combined for cooling/ The data obtained confirmed the known facts that under anesthesia, the reaction of the animal to cold is suppressed from the very beginning, there is no motor activity, and the breathing rate is decreased. In these tests the body temperature dropped off rapidly. At a body temperature of 20-21°C, rats under hypothermy and anesthetized showed

1/2

USSR

PARTSKHALADZE, N. N., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 60, No 1, Oct 70, pp 189-191

a 30% reduction in oxygen consumption and CO_2 exhalation, whereas the gas exchange of rats cooled under hypoxia and hypercapnia remained unchanged. It was concluded that the expired air of hypothermal rats under ether anaesthesia indeed contains less ether than that of animals subjected only to narcosis.

2/2

UDC: 51:330.115

USSR

PARULAVA, B. V.

"Problem of Optimum Allocation of the Production of Nonuniform Goods"

Tr. Vychisl. tsentra. AN GruzSSR (Works of the Computing Center, Academy of Sciences of the Georgian SSR), 1970, 10, No 2, pp 60-67 (from RZh--Kibernetika, No 7, Jul 71, Abstract No 7V666)

Translation: A certain random search algorithm is described; the results of solution of a specific applied problem are presented.

1/1

USSR

PARUSHINA, A. Ye; KONSTANTINOVA, O. S.

"Interferon Production in the Organism of Animals of Various Ages"

Moscow, Voprosy Mediko-Biologicheskikh Issledovaniy. Materialy Konferentsii Molodykh Nauchnykh Rabotnikov Mediko-Biologicheskogo Fakul-teta (Aspects of Biomedical Research. Materials of a Conference of Young Scientific Workers of the Biomedical Faculty), Ministerstvo Zdravookhraneniya SSSR, 1970, 93 pp, pp 3-5

Abstract: The object of the experiments was to determine the relationship between interferon production and the greater sensitivity of young animals to viral infections. Chick embryos incubated 6 and 13 days, and mice aged 1-2 and 4-5 days, 4-5 weeks, and one year were used. Infections were induced by injections of Western equine encephalomyelitis virus and Sindbis virus. Chick embryos were inoculated also with the influenza A virus. Titration established that the 6-day embryos produced considerably less interferon than did the 13-day old chicks,

1/2

USSR

PARUSHINA, A. Ye., et al, Voprosy Mediko-Biologicheskikh Issledovaniy. Materialy Konferentsii Molodykh Nauchnykh Rabotnikov Mediko-Biologicheskogo Fakul-teta, 1970, 93 pp, pp 3-5

regardless of the type of virus used for infection. Analogous results were obtained in experiments with mice: the interferon titer progressively increased with increase in the age of animals. It may be assumed, therefore, that the greater sensitivity of young animals to infections is linked to the immaturity of the interferon production mechanism.

2/2

②

UDC 539.4:624

USSR

SHAPIRO, G. A., SIMON, Yu. A., ASHKINADZE, N. G., GORLOVA, E. S., PARUSHKIN, A. K.

"Experimental Study of Earthquake Resistance of Residential Buildings of Sawn Limestone on Southern Shore of Crimean Using Vibration Machines"

Proyektir. i Str-vo Zdaniy v Seysmich. R-nakh. USSR i MoldSSR [Planning and Construction of Buildings in Earthquake Regions of UkSSR and MoldSSR -- Collection of Works], Kishinev, Timpul Press, 1972, pp 117-131, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V911).

Translation: Vibration tests and certain additional studies have shown that large-block construction of large (two-row) sections can cope successfully with dynamic loads, which, in combination with reinforced concrete walls in stairwells, assures earthquake resistance of the buildings tested with a double reserve for level eight loadings.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--NITRATION OF PENTAERYTHRITOL BY USING THE NITRIC ACID, SULFURIC
ACID, AND WATER SYSTEM -U-

AUTHOR-(04)-YEREMENKO, L.T., PARUSHKOVA, R.P., PORYADKOVA, M.A.,
STOTSKAYA, N.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 134-40

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PENTAERYTHRITOL, NITRIC ACID, SULFURIC ACID, CHEMICAL
KINETICS, NITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1670

STEP NO--UR/0062/70/000/001/0134/0140

CIRC ACCESSION NO--AP0100274
UNCLASSIFIED

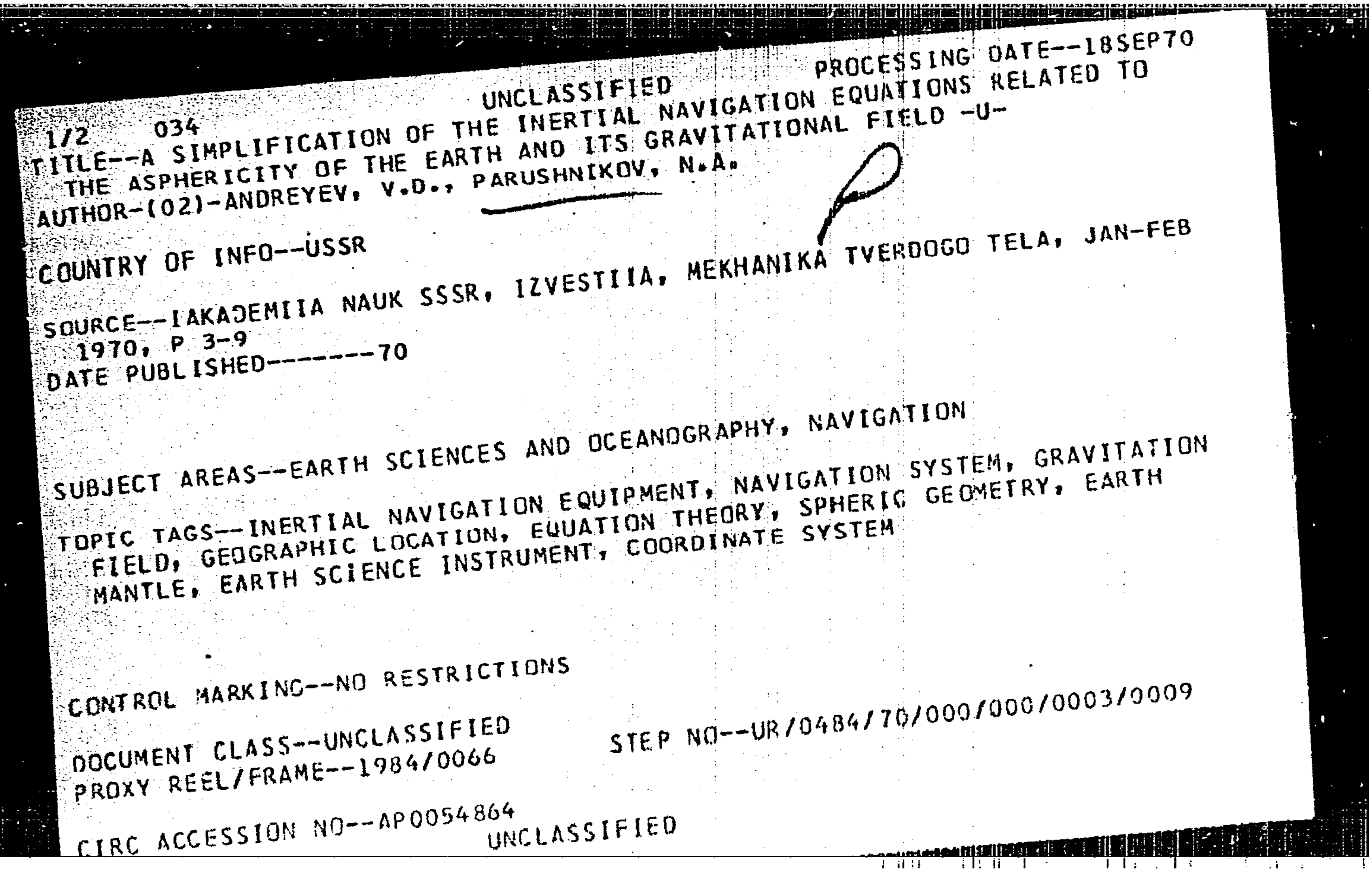
UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 020

CIRC ACCESSION NO--AP0100274

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA ON NITRATION OF PENTAERYTHRITOL BY AQ. HNO SUB3-H SUB2 SO SUB4 (RESULTS SHOWN GRAPHICALLY VARIOUS CONCNS. OF REACTANTS) SHOWED THAT THE O-NITRATION OF THE ALC. OCCURS THROUGH REACTION, NOT OF THE NITRONIUM ION, BUT, EVIDENTLY, A MOL. OF FREE AND UNIONIZED HNO SUB3.

UNCLASSIFIED



1/2 034 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--A SIMPLIFICATION OF THE INERTIAL NAVIGATION EQUATIONS RELATED TO THE ASPHERICITY OF THE EARTH AND ITS GRAVITATIONAL FIELD -U-

AUTHOR-(02)-ANDREYEV, V.D., PARUSHNIKOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--IAKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, JAN-FEB 1970, P 3-9

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, NAVIGATION

TOPIC TAGS--INERTIAL NAVIGATION EQUIPMENT, NAVIGATION SYSTEM, GRAVITATION FIELD, GEOGRAPHIC LOCATION, EQUATION THEORY, SPHERIC GEOMETRY, EARTH MANTLE, EARTH SCIENCE INSTRUMENT, COORDINATE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0066

STEP NO--UR/0484/70/000/000/0003/0009

CIRC ACCESSION NO--AP0054864

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054864

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ESTIMATION OF THE ERRORS ARISING IN THE SOLUTION OF THE INERTIAL NAVIGATION EQUATIONS WHEN TERMS DEPENDING ON THE ASPHERICITY OF THE EARTH AND ITS GRAVITATIONAL FIELD ARE NEGLECTED. CERTAIN NEW ESTIMATES ARE PRESENTED FOR THE CASE WHERE THE PURPOSE OF THE NAVIGATION SYSTEM IS TO OBTAIN THE ANGULAR COORDINATES OF THE LOCAL GEOGRAPHICAL VERTICAL. THE EQUATIONS FOR DETERMINING THE ERRORS OF THIS SYSTEM ARE DERIVED AND ARE SUBSEQUENTLY PRESENTED IN A SIMPLIFIED FORM.

UNCLASSIFIED

UDC 531.1

USSR

PARUSNIKOV, N. A.

"Some Problems in Determination of the Orientation of Instrument Trihedrals"

Moscow, Mekhanika Tverdogo Tela, No 6, Nov-Dec 72, pp 27-35

Abstract: It is desired to determine the angular position of an instrument trihedral with respect to a reference trihedral, the orientation of which is given. Serving as information for such determination are values of the projections of one or several vectors on the axis of the two triangles. There is solved the problem of control which brings about coincidence of the orientation of the instrument triangle with that of the reference triangle. The equations of a statistically optimal estimate of the angular mismatching are presented. The problem dealt with here is interpreted in application to systems pertaining to an inertial method of navigation. 1 figure. 6 references.

1/1

UDC 531.01

USSR

PARUSNIKOV, N. A.

"Methods of Analytical Mechanics in Inertial Navigation"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works of the Institute of Mechanics of Moscow University), 1970, No. 7, pp 5-24 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9A86)

Translation: A mathematical theory of inertial systems constructed in the classical mechanics formalism is presented in abbreviated form. The inertial system is considered as a structure converting the components of nongravitational (non-potential) forces measured along the axes of the instrument trihedron into running coordinates. It is assumed that the autonomous inertial system models the equations of motion of a material point described in the form of Lagrange equations of the second order. All conversions and the final equations are written in matrix form, invariant relative to the field. Equations of the perturbed motion are compiled for errors of the inertial system. Various versions of assigning the orientation of the instrument trihedron are discussed. Relationships determining the position of the vertical are derived under the assumption that the

1/2

USSR

PARUSNIKOV, N. A., Nauch. tr. In-t mekh. Mosk. un-ta, 1970, No. 7, pp 5-24

earth is an ellipsoid of rotation. As a particular case equations are derived for an inertial system operating in the axes of a geographic system of coordinates. Errors in the inertial system are divided into kinematic (caused by errors in the orientation of the instrument trihedron) and dynamic. A detailed qualitative analysis is given of the various component errors and it is noted in particular the possibility of neglecting the eccentricity of the ellipsoid, the instability of solutions of homogeneous dynamic equations of the earth, and the possibility of considerable simplifications in the motion of an object at constant altitude and at low velocities. It is noted that the equations of the errors can also be conveniently written in the form of a Hamiltonian. I. B. Chelpanov.

USSR

P

ANDREYEV, V. D. and PARUSNIKOV, N. A.

"Simplification of Equations for Inertial Navigation Resulting from Asphericity of the Earth and its Gravitational Field"

Moscow, Mekhanika Tverdogo Tela, No 1, 1970, pp 3-9

Abstract: The errors arising in the solution of inertial navigation systems as a result of the fact that these equations ignore components depending on the asphericity of the form of the Earth and its field of gravity are evaluated. It is assumed that the purpose of the navigational system is determination of the angular coordinates of the local geographic vertical. The problem is an intelligent compromise between contradictory demands: a navigational model should be simple enough for realization by an on-board computer; the simplified model should not lead to significant errors in the determination of the coordinates of the vehicle. The work presents several new valuations for cases in which the purpose of the navigational system is the determination of the angular coordinates of the local geographic vertical.

1/1

USSR

UDC: 621.317.733

DVINSKIKH, V. A., PARUSOV, V. P.

"Measurement Bridge Circuits Which Operate in the Self-Excitation Mode"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 25-26 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A351)

Translation: A method is proposed for measuring impedance components by means of circuits in which the measurement bridge is connected in the feedback circuit of a selective amplifier. When certain amplitude and phase ratios exist in such circuits, self-oscillations arise with amplitude and frequency which are uniquely determined by the measurement bridge parameters for predetermined parameters of the selective amplifier. The theory of the measurement method and procedure is briefly presented. E. L.

1/1

USSR

MURASHOV, L. S., et al., Tekhnika Kino i Televideniya, No 10, 1972, p 54 -

resolution of the cathode ray tube with an electro-optical screen was bringing the collector closer to the crystal with simultaneous constriction of the electron beam. It is theoretically possible to obtain a complete television image with a contrast of more than 50:1 on a crystal 60 × 60 × 1 mm^3 ($d = 0.05$ mm, $2r_m = 0.04$ mm). A contrast of 110:1 was obtained experimentally when recording a single line. This resolution makes it possible to use the device not only in systems with ordinary image representations also in holographic television. The primary deficiency of the device, nitrogen cooling, can be eliminated by using such electro-optical crystals as KD_2PO_4 [Ye. K. Mustel', et al., Metody modulyatsii i skanirovaniya sveta, Nauka, 1970]. Use of such crystals offers the possibility of using a semiconductor cooling device or if the information is not to be stored for a long period of time, operation at room temperature. A light beam of almost any power can be used to display the image on the electro-optical plate, and therefore the device can be used in projection television systems, including large-screen systems and in a number of other areas of television engineering.

2/2

USSR

MURASHOV, L. S., [illegible]ROV, S. I., PARYGIN, V. N.

"Cathode-Ray Tube with an Electro-Optical Screen"

Checkhov, Tekhnika Kino i Televideniya, No 10, 1972, p 54

Abstract: A study was made to determine the possibility of using a cathode ray tube with an electrooptical screen in television equipment. The tube design was similar to that described previously [T. A. Kuliyev, et al., Vestnik Moskovskogo Universiteta, No 5, 1971]. In the investigated model, the electro-optical plate was cooled to temperatures close to the phase transition points of the electro-optical potassium dihydrophosphate crystal KH_2PO_4 (T_b = -150°C). Both the equilibrium and nonequilibrium methods of recording the relief potential on the electro-optical crystal were used. The resolution of the device was basically defined by the size of the electron beam if the following condition was satisfied:

$$2r_m \geq \min (d, \ell\sqrt{\varepsilon_\perp/\varepsilon_\parallel}),$$

where r_m is the radius of the electron beam cross section; d is the distance from the crystal to the collector; ℓ is the thickness of the crystal; $\varepsilon_\perp$ and $\varepsilon_\parallel$ are the dielectric constants of the electro-optical crystal orthogonally and along the optical axis respectively. The simplest method of increasing the

1/2

USSR

UDC 528.517:535.8

DIANOVA, V. A., MOVSESYAN, R. A., PARYGIN, V. N., and PAPYAN, V. A.

"Modulation of the Helium-Neon Laser Emission With the Help of Lithium Niobate Crystals"

Moscow, Geodeziya i Kartografiya, No 1, Jan 72, pp 32—36

Abstract : Experiments conducted with new electro-optical materials, lithium niobate ($LiNbO_3$) crystals, at the Yerivan Polytechnic Institute imeni K. Marx, are described. The results are discussed by reference to experimental and calculated modulation depth - modulating power curves of $LiNbO_3$, shown in comparison with KDP curves. It was found that the use of $LiNbO_3$ crystals instead of KDP crystals in the capacity of electro-optical element in a photometric range finder with a modulator of toroidal type possesses advantages over ADP and KDP crystals, including: 1) the required power to obtain the same efficiency of the modulator decreases by 2—2.5 times; 2) the size of the modulator can be reduced by ∽4 times; 3) the $LiNbO_3$ crystals are not hygroscopic and are much stronger than KDP crystals; 4) thermal effects have not been observed in modulators with $LiNbO_3$ crystal at the average power of 6 w. Three illustr., six biblio. refs.

USSR

USSR

BAGLIKOV, V. B., PARYGIN, V. N.

UDC 621.373.029.7

"Modulating the Coupling of a Gas Laser With High Amplification of the Active Element"

Moscow, Radiotekhnika i Elektronika, No 11, Nov 71, pp 2144-2151

Abstract: Coupling modulation is theoretically and experimentally studied for a laser in which the distribution of the amplitudes of traveling light waves with respect to the length of the cavity differs considerably from uniform distribution. The object of the study is a gas laser with high amplification of the active element. The singularities of the spectral line with $\lambda = 3.39$ μ and similar lines are taken into account. The statistical characteristics of the single-frequency mode are theoretically analyzed together with the frequency and amplitude characteristics for limiting cases of low and high frequencies. The gain in modulating voltages and in the maximum amplitudes of the alternating components as compared with external modulation is evaluated. Modulation of the coupling of a helium-neon laser with $\lambda = 3.39$ μ is experimentally realized. There

1/2

USSR

BAGLIKOV, V. B., PARYGIN, V. N., Radiotekhnika i Elektronika, vol 16, No 11, Nov 71, pp 2144-2151

were no more than three longitudinal TEM_{00q} modes, and the side modes had little effect on the characteristics of single-frequency emission. The static, frequency (up to $\sim 2\Omega_i$) and amplitude (within the band of internal modulation) characteristics of coupling modulation are measured. The experimental data agree satisfactorily with the theoretical calculations. Four figures, bibliography of five titles.

USSR

UDC 621.373.029.67:621.376

BAGLIKOV, V. B., and PARYGIN, V. N.

"Asynchronous Modulation of the Cuopling of a Gas Laser"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1411-1417

Abstract: A theoretical analysis is made of the characteristics of modulation of the coupling of low-gain single-frequency and multifrequency gas lasers as related to the nature of broadening of the spectral line of the working transition of the active medium, the excess over the emission threshold, and the form of the optical spectrum. The presence of low-gain frequencies in the spectrum leads to slight quantitative changes in modulation characteristics as compared with the case of single-frequency emission. In the case of modulation by a variable signal, the coupling modulation band is considerably broadened. When the operating point is appropriately selected, the frequency response of coupling modulation is uniform from zero to the frequency of intermode beats. This type of modulation makes it possible to realize a gain in the slope of the amplitude characteristic, the maximum amplitude of the variable component of the output power, and the necessary voltage as compared with the case of external modulation. Coupling of a helium-neon laser with λ = 0.633 μ is experimentally modulated. The static, frequency,

1/2

USSR

BAGLIKOV, V. B., and PARYGIN, V. N., Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1411-1417

and amplitude characteristics of the modulation are measured under three different sets of conditions. The experimental data agree satisfactorily with the proposed theory.

2/2

USSR UDC: 535.8:535.241.13

ZEMLYACHEV, Ye. Z., PARYGIN, V. N.

"A Light Modulator With Optical Resonator"

Moscow, Radiotekhnika i Elektronika, Vol. 16, No 6, Jun 71, pp 1010-1016

Abstract: An experimental and theoretical study is made of a Fabry-Perot electro-optical modulator. Modulation and frequency characteristics are found with regard to light losses in the crystal. Experimental data obtained on a wavelength of 6328 Å using various cuts of KDP and ADP crystals agree well with the theory. When mirrors having a coefficient of reflection of 0.96 were used with a 45° X-cut of ADP crystals, light losses were 80 percent. The voltage necessary for 65 percent modulation in this case was 15 V_{ef}. The modulation frequency band was 175 MHz. Thus the interference modulator has a considerable advantage over a polarization modulator with respect to power consumption. A disadvantage of the device is the necessity for using a single-frequency laser with frequency stability of the order of $5 \cdot 10^{-8}$. Besides this, the temperature stability of the crystal must be $\sim 10^{-2}$-10^{-3} °C, depending on the crystal used.

1/1

P Optics & Spectroscopy

USSR UDC 535.5

MUSTEL', YE. R., PARYGIN, V. N.

"Metody Modulyatsii i Skanirovaniya Sveta (Methods for the Modulation and Scanning of Light)"

Moscow, "Nauka," 1970, pp 2-5

Translation: In the book are set forth methods for controlling the intensity, the frequency, the polarization, and the direction of the propagation of light. The first part deals with the physical foundations of various methods for the modulation and scanning of a laser beam. Detailed attention is given to the linear and quadratic electro-optical effects, magneto-optics, modulation in the electrical control of light absorption, and methods for the modulation of light by acoustic waves. Diagrams of light modulators in the radio-frequency range and the superhighfrequency range, based upon these methods, are presented. Brief consideration is given to various systems for the deflection of a light ray. The second part deals with the internal modulation of the emission of a gas laser that originates when the

1/8

USSR

MUSTEL', YE. R., et al, "Nauka,", 1970, pp 2-5

parameters of the gas laser are periodically changed. The differences in the modulation of laser emission with control of the active and reactive parameters of the laser medium are shown. Consideration is given to the modes of asynchronous and synchronous internal modulation and their application for purposes of the transmission of information by an optical beam. 10 tables, 118 illustrations, 360 bibliographical items.

TABLE OF CONTENTS

Foreword 6

Part I

METHODS FOR THE MODULATION AND SCANNING OF A LIGHT BEAM

Chapter 1. The Linear Electro-Optical Effect in Crystals of the KDP /potassium dihydrophosphate/ Type and Its Application for Light Modulation 11

2/8

USSR

MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

1.1. The linear electro-optical effect in class 42 m crystals 13

1.2. The secondary electro-optical effect and thermal deformations 22

1.3. Application of the longitudinal and transverse electro-optical effect for purposes of light modulation 27

1.4. Obtaining single-band modulation and a light frequency shift 34

1.5. Transformation of the phase modulation of light into amplitude modulation 39

Chapter 2. The Linear Electro-Optical Effect in Crystals of Various Classes 48

2.1. The electro-optical effect in cubic crystals 48

2.2. The double transverse Pockels effect 66

2.3. The electro-optical effect in ferroelectric perovskites 73

2.4. The electro-optical effect in selenium and quartz crystals 78

USSR

MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

2.5. The electro-optical effect in class 2 crystals 80

Chapter 3. Light Modulators Which Use the Linear Electro-Optical Effect 82
3.1. Modulators with lumped parameters 82
3.2. Coaxial and two-wire light modulators with the crystal in the capacitive gap 89
3.3. Modulators at the p-n junction of a semiconductor diode 99
3.4. Modulators with long-term interaction of light waves and superhighfrequency waves 102
3.5. Noncollinear light modulators 114
3.6. A synchronous light modulator 117
3.7. Modulators with multiple passage of light through the crystal 125

Chapter 4. Modulation of Light on the Basis of the Quadratic Electro-Optical Effect 131
4.1. Foundations of the theory of the quadratic electro-optical effect 131

4/8

USSR

MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

4.2. Modulation of light on the basis of cubic perovskites 138
4.3. Kerr liquid cells 143

Chapter 5. Modulation of Light With Electrical Control of Absorption 149
5.1. A modulator with carrier injection 152
5.2. A modulator with a depleted layer 156
5.3. Light modulation based upon change of carrier mobility 159
5.4. Selective absorption by free carriers 160
5.5. Light modulation based upon the shift of the main optical-absorption band edge 161

Chapter 6. Magneto-Optical Modulation of Radiation 168
6.1. The phenomenological theory of magneto-optical effects 169
6.2. The magneto-optical properties of ferromagnetic materials that are transparent in the visible and infrared regions of the spectrum 175
6.3. Magneto-optical modulators of radiation 180

USSR

MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

6.4. Superhighfrequency Faraday modulators 184

Chapter 7. The Modulation of Light by Acoustic Waves 186
7.1. Photoelasticity 187
7.2. Photoelastic modulators based on birefringence 191
7.3. Light diffraction by acoustic waves 200
7.4. Bragg diffraction 207
7.5. Modulators employing light diffraction 210

Chapter 8. The Scanning of Light 214
8.1. Light deflection in media with an index of refraction that changes in time 215
8.2. Scanning of light in substances with a diffraction-index gradient 219
8.3. Deflection systems of the diffraction type 221
8.4. Acoustic diffraction of light in anisotropic crystals 223
8.5. Discrete deflecting systems 226
8.6. A three-dimensional electron-beam modulator 228

6/8

USSR

MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

Part II

INTERNAL CONTROL OF LASER EMISSION

Chapter 9. Asynchronous Modulation 232
9.1. Formulation of the problem 232
9.2. Modulation of laser emission with periodic change of losses in the resonator 234
9.3. Modulation of the laser coupling (load) 243
9.4. Experimental projects on internal modulation and coupling modulation 247
9.5. Frequency modulation 254
9.6. A laser with internal scanning 256

Chapter 10. Synchronous Modulation 260
10.1. Synchronization of laser modes with change in resonator losses 260
10.2. The pulse mode and its application for modulation purposes 265
10.3. Modulation of the reactive parameters of a laser 267

7/8

USSR

MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

10.4. A laser with frequency modulation 273

Bibliography 276

8/8

USSR

ZUSMAN, M. I.; MANESHIN, N. K.; PARYGIN, V. N. (Chair of the Physics of Oscillations)

"Modulation of 10-μ Radiation by Means of Ultrasound"

Moscow, Vestnik Moskovskogo Universiteta: Fizika, Astronomiya; March-April, 1972; pp 190-4

ABSTRACT: The authors present results of an experimental study of a modulator of 10.6-μ radiation using the photoelastic effect in a germanium crystal. The effective percentage modulation at an ultrasonic frequency of 13 Mc and equal to 20% for double refraction and 70% for diffraction, with a power consumption of 2.2 watts by a piezoelectric driver, was obtained. The modulation band comprised 1%.

The article includes three equations and three figures. Figure 1 shows (a) the equivalent circuit of a piezoelectric converter and (b) the schematic diagram of matching a piezoelectric converter with an electric oscillator. Figure 2 shows the theoretical and experimental dependence of the effectiveness of a double refraction modulator on the voltage fed to a piezoelectric converter. Figure 3 shows the theoretical and experimental dependence of the effectiveness of a diffraction modulator on the voltage fed to a piezoelectric converter.

There are two bibliographic references.

1/1

PARYGIN, V. N.

36

		Page
Kuliyev, T. A., Hustel', Ye. R., Parygin, V. N.	Electron-Beam Light Modulator	234
Hustel', Ye. R., Parygin, V. N., Solomatin, V. S., Baglikov, V. B.	Internal Modulation of a Gas Laser	239
Pankratov, V. M., Petrova, T. V., Ponomareva, I. P., Fomichev, N. N.	Visible and Infrared LightModulator Based on a Lithium Metaniobate Crystal with 0° Orientation	246
Pankratov, V. M., Petrova, T. V., Ponomareva, I. P., Fomichev, N. N.	Wide Band Light Modulator Based on a Lithium Metaniobate Crystal with 90° Orientation	253
Magdich, L. N.	Phase Relations of the Synchronous Mode of Laser Emission with Modulated Dielectric Constant of the Resonator	258
Deryugin, I. A., Solomko, A. A.	Nonlinear Distortions in Microwave Modulators of Laser Emission	262
Kovlova, M. M., Nikolayev, I. V.	Utilization of Gallium Arsenide Crystals for Modulation of Radiation with a Wavelength of λ = 10.6 microns	268
Tron'ko, V. D.	Some Types of Faraday Modulators and Their Nonlinear Distortions	273
Tron'ko, V. D.	Method of Simultaneous Determination of the Frequency Characteristics of the Photoreceiver and Faraday Modulator	278
Mishchenko, B. P., Oboznenko, Yu. L.	Application of a Refraction Acoustic Cell for Synchronization of the Pulse Laser Emission	260
Samorodov, Yu. D., Belozerov, Ye. G.	Wideband Light Detector	283
Petrov, A. S., Soldatkin, N. P.	Sensitivity and Inertia of a Photodiode Light Receiver with Parametric Amplifier	293
Petrov, A. S., Tyul'kov, G. I.	High-Frequency and Low Inertia Photoresistor Light Detector with Superhigh-Frequency Bias ...	299

TECHNICAL TRANSLATION

ARM | FSTC-HT-23-2015-72
29 Nov 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACSI

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information.

Approved for public release. Distribution unlimited.

- Title Page -

AA0040690 Parylis, M.E. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

241817 PNEUMATIC LEVEL GAUGE is used to measure the level of molten metal and comprises a piezometric recorder moved in accordance with the level ofmelt at any moment by means of a servo system. The piezometric recorder is in the form of an ejector with an expansion chamber 2, placed at the discharge end of the recorder's measuring channel 1, and finishing with an outlet of the measuring channel 3. Channel 3 connects the cavity of the expansion chamber 2 with the measuring channel 1 leading out to the atmosphere. At the outlet is fitted a nozzle 4 connected to the feed 5 of the recorder. As a result of ejection of gas from the nozzle of the measuring cavity, a negative pressure is induced. The level gauge operates as follows. When gas is directed to feeding cavity of the recorder 5, a certain amount of vacuum is formed in the expansion cavity. At that the contact pressure gauge switches

21

1/3

19750305